

### Abstracts

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| Abstract Number  | <b>S-4-10-03</b>  |
| Presenter        | Brenda Eskenazi*, Kim Harley, Marcy Warner, Asa Bradman, Nina Holland |
| Exposure         | persistent organic pollutants   |
| Health domains   | obesity   |
| Type of research | cohort study  |

#### Environmental endocrine disruptors, growth and pubertal development in Mexican-American girls

**Background.** Overweight and obesity is on the rise in the US and in other industrialized countries. One of the highest risk US populations is Mexican-Americans. This population may also be at high risk for exposure to certain endocrine disruptors because of recent immigration from Mexico (DDT) and residence in California (PBDEs). **Aims.** We examine the relationship of DDT, Bisphenol A and PBDE flame retardants and childhood obesity in the CHAMACOS cohort. **Methods.** We enrolled 601 pregnant women primarily of Mexican origin and have followed their children (currently 12 years old). We measured height, weight, and waist circumference at each visit. Starting at child age 9, we also assessed Tanner staging to know onset of puberty. We measured PBDEs and DDT in maternal (prenatal) and child blood and BPA in maternal (prenatal) and child urine. **Results:** At 7 years, 36% of the children were obese. We found that prenatal maternal o,p'-DDT, p,p'-DDT, or p,p'-DDE levels were non-significantly associated with increased odds of obesity; however, with increasing age at follow-up, we observed a significant trend towards a positive association. In contrast, prenatal urinary BPA concentrations were associated with decreased BMI at age 9 in girls but not boys. These findings were strongest in pre-pubertal girls and the trend seemed to be changing with puberty. However, BPA concentrations at age 9 were positively related to BMI, waist circumference, fat mass, and overweight/obesity at age 9 in boys and girls. We will also present results for associations with maternal and child PBDE levels. **Conclusions:** Endocrine disrupting chemicals may be associated with both decrease and increase in body mass in children and this relationship may depend on time of exposure and pubertal onset. **Acknowledgement:** This work was supported by PO1 ES009605 and R01 ES017054 from the NIEHS and R82670901, RD83171001, and RD83451301 from the U.S. EPA.

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| Abstract Number  | <b>S-4-10-04</b>   |
| Presenter        | Andrew Rundle*, Michelle Maresca, Lori Hoepner, Antonia M. Calafat, Frederica Perera, Robin Whyatt |
| Exposure         | ambient air pollution  |
| Health domains   | obesity  |
| Type of research | cohort study   |

#### Prenatal exposures to polycyclic aromatic hydrocarbons and di-(2-ethylhexyl)-phthalate and body size in childhood.

**Background:** there are concerns that prenatal exposures to endocrine disrupting chemicals in the environment increase children's risk of obesity. **Aims:** to determine whether prenatal exposures to polycyclic aromatic hydrocarbon (PAH) and maternal prenatal urinary di-(2-ethylhexyl)-phthalate (DEHP) metabolite concentrations were associated with childhood body size at ages 5 and 7. **Methods:** African American and Hispanic children born in the Bronx or Northern Manhattan, whose mothers (n=702) underwent personal air monitoring for PAH during pregnancy were followed-up to age 5 and 7. DEHP metabolites were measured in spot urine samples collected from the mothers (n=424) during the third trimester of pregnancy and from the children at ages 3 and 5. Multivariable linear regression was performed to relate ambient air PAH concentrations and the molar sum of urinary DEHP metabolites to child body mass index (BMI) z-score at ages 5 (n= 422 for PAH and n=333 for DEHP analyses) and 7 (n=341 for PAH and n=288 for DEHP analyses). **Results:** after adjustment for confounders, compared to children of mothers in the first tertile of PAH exposure, children of mothers in the third exposure tertile had a 0.39 unit higher BMI Z-score (95% CI 0.08, 0.70) at age five, and at age seven had a 0.30 unit higher BMI Z-score (95% CI 0.01, 0.59). After adjustment for confounders, age 5 BMI z-scores were inversely associated with sum of maternal DEHP metabolites (-0.20 units per unit increase in Ln of molar sum, 95% -0.38, -0.02). The sum of maternal DEHP metabolites was not associated with BMI z-scores at age 7, but was significantly positively associated with gains in BMI z-score between ages 5 and 7. DEHP metabolite concentrations in the children at ages 3 and 5 did not predict body size, nor confound the effects of maternal concentrations on child body size. **Conclusions:** prenatal exposures to environmental contaminants are associated with differences in children's body size and weight gain.

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